

INVESTIGATOR'S ANNUAL REPORT

National Park Service

All or some of the information provided may be available to the public

Reporting Year: 1997	Park: Shenandoah NP												
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Permit#: SHEN1997AULP													
Park-assigned Study Id. #: unknown													
Project Title: Timber Rattlesnake Population Monitoring (N-58)													
Permit Start Date: Jan 01, 1998	Permit Expiration Date Jan 01, 1998												
Study Start Date: Jan 01, 1973	Study End Date Jan 01, 2027												
Study Status: Completed													
Activity Type: Inventory													
Subject/Discipline: Herpetology (Amphibians / Reptiles)													
Objectives: 1) Locate major overwintering dens and birthing rookeries within the Shenandoah ecosystem.;2) Determine seasonal movements and timing of seasonal activities.;3) Determine growth rates, maturation, reproductive interval, demography, population dynamics and population size.													
Findings and Status: <p>Within the Shenandoah ecosystem, I found the timber rattlesnake at 105 sites that have been confirmed as overwintering dens and/or gestating sites (birthing rookeries). The active season averages 5.3 mo (Martin, 1992). The modal age at first reproduction is 8 yr and the generation time is calculated at 13 yr. Populations over the 25-yr study period have been essentially stable. However, because of extreme yearly fluctuations in reproduction (Martin, 1993) the age-class structure is dominated by certain cohorts that reproduce mostly in concert at intervals of 3 and 4 yr. Litter size averages about 8 with early September the typical time of birth. First year survival is somewhere between 25 and 50% and thereafter between 85 and 90%.;1) Two new sites were found in 1997. ;2 & 3) The cool spring delayed on set of summer activities, such as gestation, by about 3 wks. Above average temperatures from mid-summer on made up some of the temperature deficit (heating degree days by 10/13 were equal to the normal for 9/21. Birthing dates ranged from about 1 wk behind average at the lower elevations to 2-3 wks at the higher elevations. Unusually high temperatures from 10/3-13 allowed completion of birthing. As predicted, reproduction was low but should be high in 1998 with the '94 and '95 reproductive cohorts, reproducing together at 4- and 3-yr intervals. The hot late summer is expected to have enhance yolking and gotten the males active.;For the first time I saw evidence of poaching at a study site. Adults were killed and the skins and rattles taken on 2 separate occasions at a site located near Bearfence (two skeletons were found). I took no pregnant females into the lab for birthing. One individual who was a possible candidate was among those poached at Bearfence.;I had 11 field days in Shenandoah at 15 sites with 1-5 visits per site. Excluding litters, 90 rattlesnakes and 16 copperheads were seen. I counted 21 newborn from 7 litters.;</p> <table border="1"> <thead> <tr> <th>Appendix;Adult Male</th> <th>Reproductive</th> <th>other*</th> <th>Age-Cohorts;</th> </tr> </thead> <tbody> <tr> <td>'91-'93</td> <td>94</td> <td></td> <td></td> </tr> <tr> <td>'95 '96 '97;-----;</td> <td>9</td> <td>8 34 17 8 8 6 21;</td> <td>*includes nonreproductive females;</td> </tr> </tbody> </table> <p>adults that were not sexed; and 2 juveniles that escaped before they could be assigned to age classes.;3/22 W.R. 1 TR (timber rattlesnake);4/30 W.R. 13 TR, 1 copperhead; Lands Run 27 TR, 3 copperhead;5/2 Old Rag searched unsuccessfully for den;8/18 W.R. 3 TR (2 G [gravid]); Bearfence 3 TR (1 G);9/1 Devils Ditch (3 sites 1 new) 3TR, 1 copperhead;9/3 Overall (3 sites) 6 TR, 3 litters and sheds of others, 3 copperheads and sheds of at least 2 litters.;9/8 Hannah Run 2 TR female, 1 newborn; Buck Ridge 2 TR, 4 copperheads;9/29 Cat Knob 1 TR G, 1 litter; Bearfence 4 TR at den;10/9 Piney Ridge 9 TR; Browntown 5 TR;10/14 W.R. 4 TR;10/20 Lands Run 1 TR;10/31 W.R. 3 TR (2 were 25, 50 m from den)</p>		Appendix;Adult Male	Reproductive	other*	Age-Cohorts;	'91-'93	94			'95 '96 '97;-----;	9	8 34 17 8 8 6 21;	*includes nonreproductive females;
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For this study, were one or more specimens collected and removed from the park but not destroyed during analyses? No	
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Fill out the following ONLY IF the National Park Service supported this project in this reporting year by providing money to a university or college	
Full name of college or university: n/a	Annual funding provided by NPS to university or college this reporting year: 0